

I claim:

1. A method of processing a wafer having a conductive surface, the conductive surface including a top portion and a cavity portion, the method comprising the steps:
  - maintaining a low temperature processing environment;
  - wetting the conductive surface with an electrolyte solution having at least one additive disposed therein, a first amount of the additive becoming adsorbed on the top portion and a second amount of the additive becoming adsorbed on the cavity portion;
  - applying an external influence to the top portion, the external influence removing a part of the first amount of the additive adsorbed on the top portion; and
  - processing the conductive top surface before the additive re-adsorbs onto the top portion to provide a planar layer.
2. The method of claim 1, wherein the step of maintaining a low temperature includes contacting the wafer with process tools having a low temperature.
3. The method of claim 2 further comprising a substrate carrier wherein the step of maintaining a low temperature includes:
  - chilling the substrate carrier; and
  - contacting the wafer with the chilled substrate carrier.
4. The method of claim 1, wherein the step of maintaining a low temperature includes wetting the conductive surface with the electrolyte solution at a low temperature.

5. The method of claim 1, wherein the low temperature is between 1 – 15 degrees C.
6. The method of claim 1 further comprising a sweeper wherein the step of applying an external influence includes sweeping the conductive surface with the sweeper.
7. The method of claim 6, wherein the step of sweeping the conductive surface includes contacting the sweeper with the conductive surface.
8. The method of claim 1, wherein the step of processing includes removing a conductive material from the conductive surface.
9. The method of claim 1, wherein the step of processing includes plating a conductive material on to the conductive surface.
10. The method of claim 1 further comprising wetting the conductive surface with a second electrolyte solution having a different additive concentration to provide the planer layer.
11. A method of processing a wafer having a conductive surface, the conductive surface including a top portion and a cavity portion, the method comprising the steps:
  - wetting the conductive surface with an electrolyte solution having at least one additive disposed therein, a first amount of the additive becoming adsorbed on the top portion and a second amount of the additive becoming adsorbed on the cavity portion;
  - applying an external influence to the top portion, the external influence removing a part of the first amount of the additive adsorbed on the top portion;

processing the conductive top surface before the additive re-adsorbs onto the top portion;  
chilling the electrolyte solution;  
wetting the conductive surface with the chilled electrolyte solution;  
reapplying the external influence to the top portion; and  
processing the conductive top surface to provide a planar layer.

12. The method of claim 11, wherein the step of chilling the electrolyte solution includes chilling a second electrolyte solution.

13. The method of claim 12, wherein the second electrolyte solution includes an additive concentration different from the electrolyte solution and the step of wetting the conductive surface with the chilled electrolyte solution includes wetting the top surface with the chilled second electrolyte solution.

14. The method of claim 11, wherein the chilled electrolyte solution is between 1 – 15 degrees C.

15. The method of claim 11 further comprising a sweeper wherein the step of applying an external influence includes sweeping the conductive surface with the sweeper.

16. The method of claim 15, wherein the step of sweeping the conductive surface includes contacting the sweeper with the conductive surface.

17. The method of claim 11, wherein the step of processing includes removing a conductive material from the conductive surface.

18. The method of claim 11, wherein the step of processing includes plating a conductive material on to the conductive surface.